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**EXHIBIT A**

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the manufacture approach of reinforced plastics mold goods, such as an organ bath or a waterproofing pan.

[0002]

[Description of the Prior Art] Conventionally, installing a bathroom unit is performed in the apartment etc. As shown in drawing 5, this bathroom unit 1 is set up by the waterproofing pan 2 which formed the washing place with FRP shaping, this waterproofing pan 2, one or the organ bath 3 of another object, and the periphery section of the waterproofing pan 2, and upper part opening formed of the wall panels 4 which surround the perimeter of these waterproofing pans 2 and an organ bath 3; and these wall panels 4 consists of wrap ceiling panels 5. And watertightness and thermal resistance are demanded, as shown in drawing 6, from the side used as an internal surface, the laminating of the waterproofing pan 2 is carried out to the order of the gel coat layer 21, the staple fiber reinforcement layer 22, the continuous glass fiber reinforcement layer 23, and the backup layer 24, and it is formed in it (for example, refer to JP,5-301295,A).

[0003] A laminating is sprayed and carried out with thermosetting resin, such as an unsaturated polyester resin, the staple fiber reinforcement layer 22 cutting reinforcement fiber, such as a glass fiber and carbon fiber, by 2-10mm length, and cutting reinforcement fiber by 25-50mm length, with thermosetting resin, it sprays and the laminating of the continuous glass fiber reinforcement layer 23 is carried out. Furthermore, cutting reinforcement fiber by 25-50mm length, with thermosetting resin, it sprays and the laminating of the backup layer 24 used as the outermost layer is carried out.

[0004] In addition, since reinforcement is raised, the reinforcement frames 25, such as waterproof plywood, and synthetic wood or steel materials, may be made to lay underground between the continuous glass fiber reinforcement layer 23 and the backup layer 24 (refer to drawing 7).

[0005]

[Problem(s) to be Solved by the Invention] However, on the occasion of manufacture of reinforced plastics mold goods, such as a waterproofing pan mentioned above, at the time of formation of the backup layer used as the outermost layer, the air and the air bubbles which are mixed into a resin ingredient had to be removed (degassing), the remarkable man day was prepared for the degassing activity, and there was a problem that productivity fell.

[0006] This invention offers the manufacture approach of the reinforced plastics mold goods which can reduce the man day of a degassing activity and can raise productivity at the time of formation of the backup layer which was made in view of such a trouble and turns into the outermost layer.

[0007]

[Means for Solving the Problem] After spraying and stiffening a gel coat resin on the surface of a die, it is characterized by spraying and carrying out a laminating with thermosetting resin, spraying, carrying out the laminating of it with thermosetting resin, this invention cutting reinforcement fiber by 2-10mm length, spraying, carrying out the laminating of it with thermosetting resin, subsequently, cutting

reinforcement fiber by 25-50mm length, and it intervening a reinforcement frame further, or cutting direct reinforcement fiber by 3-9mm length.

[0008]

[Function] After spraying and stiffening a gel coat resin on the surface of a die and forming a gel coat layer, a laminating is sprayed and carried out with thermosetting resin, cutting reinforcement fiber by 2-10mm length, and a staple fiber reinforcement layer is formed. Subsequently, a laminating is sprayed and carried out with thermosetting resin, cutting reinforcement fiber by 25-50mm length, and a continuous glass fiber reinforcement layer is formed. Furthermore, a laminating is sprayed and carried out with thermosetting resin, a reinforcement frame being placed between a continuous glass fiber reinforcement layer, or cutting reinforcement fiber by 3-9mm length in a direct continuous glass fiber reinforcement layer, and a staple fiber backup layer is formed.

[0009] Consequently, at the time of formation of a staple fiber backup layer, a degassing activity can become almost unnecessary and productivity can be raised.

[0010]

[Example] Hereafter, the example of this invention is explained with reference to a drawing.

[0011] The waterproofing pan 2 which is the reinforced plastics mold goods of this invention is shown, and this waterproofing pan 2 carries out the laminating of the gel coat layer 21, the staple fiber reinforcement layer 22, the continuous glass fiber reinforcement layer 23, and the staple fiber backup layer 26 to order, and is constituted from that front-face side by drawing 1.

[0012] The gel coat layer 21 is formed by the gel coat resin, for example, an unsaturated polyester resin. And the staple fiber reinforcement layer 22 reinforces the gel coat layer 21, carries out mixed distribution of the reinforcement fiber cut by 2-10mm length, for example, the glass fiber, and is formed in thermosetting resin, for example, an unsaturated polyester resin. Moreover, similarly, the continuous glass fiber reinforcement layer 23 carries out mixed distribution of the reinforcement fiber cut by 25-50mm length, for example, the glass fiber, and is formed in thermosetting resin, for example, an unsaturated polyester resin. Furthermore, similarly, the staple fiber backup layer 26 also carries out mixed distribution of the reinforcement fiber cut by 3-9mm length, for example, the glass fiber, and is formed in thermosetting resin, for example, an unsaturated polyester resin.

[0013] Here, as thermosetting resin, a phenol besides an unsaturated polyester resin, vinyl ester, etc. can be used. Moreover, as reinforcement fiber, the ingredient which has the thermal resistance and hot water resistance of polyester, a polyamide, polyolefine, polyvinyl alcohol, etc. in addition to a glass fiber is used.

[0014] Next, if the concrete manufacture approach of such a waterproofing pan 2 is explained, first, the die K of the waterproofing pan 2 will be made to spray and harden an unsaturated polyester resin, and the gel coat layer 21 will be formed (refer to drawing 2). Next, a laminating is sprayed and carried out to the gel coat layer 21 by making unsaturated-polyester-resin 22a spray in the shape of a fog from a spray nozzle S, making glass staple fiber 22b and unsaturated-polyester-resin 22a meet in the air, and mixing them at the same time it blows off the roller cutter R cutting glass fiber 22x in die length of 2-10mm (refer to drawing 2). Consequently, the staple fiber reinforcement layer 22 which reinforces the gel coat layer 21 by unsaturated-polyester-resin 22a and glass staple fiber 22b is formed (refer to drawing 3).

[0015] Subsequently, a laminating is sprayed and carried out to the staple fiber reinforcement layer 22 by making unsaturated-polyester-resin 23a spray in the shape of a fog from a spray nozzle S, making continuous glass fiber 23b and unsaturated-polyester-resin 23a meet in the air, and mixing them at the same time it blows off the roller cutter R cutting glass fiber 23x in die length of 25-50mm (refer to drawing 3). Consequently, the continuous glass fiber reinforcement layer 23 which reinforces the staple fiber reinforcement layer 22 by unsaturated-polyester-resin 23a and glass staple fiber 23b is formed (refer to drawing 4).

[0016] Then, a laminating is sprayed and carried out to the continuous glass fiber reinforcement layer 23 by making unsaturated-polyester-resin 26a spray in the shape of a fog from a spray nozzle S, making glass staple fiber 26b and unsaturated-polyester-resin 26a meet in the air, and mixing them at the same

time it blows off the roller cutter R cutting glass fiber 26x in die length of 3-9mm (refer to drawing 4 ). Consequently, the staple fiber backup layer 26 is formed of unsaturated-polyester-resin 26a and glass staple fiber 26b (refer to drawing 1 ).

[0017] In this case, whenever [ viscosity / of unsaturated-polyester-resin 26a which forms the staple fiber backup layer 26 / , and thixotropy ] is raising the numeric value compared with whenever [ viscosity / of the unsaturated polyester resins 22a and 23a which form the staple fiber reinforcement layer 22 and the continuous glass fiber reinforcement layer 23 / , and thixotropy ]. To the viscosity of the unsaturated polyester resins 22a and 23a in the staple fiber reinforcement layer 22 or the continuous glass fiber reinforcement layer 23 being 2.9-4.0poise, and whenever [ those thixotropy ] being 2.0-3.9, it is 8.0-15.0poise, and 3.8-5.0, respectively, and whenever [ viscosity / of unsaturated-polyester-resin 26a in the staple fiber backup layer 26 / and thixotropy ] has more strong stickiness, and, specifically, has the description which is hard to give.

[0018] Thus, in the formed staple fiber backup layer 26, only harmless minute air bubbles are almost generated, but a degassing activity becomes unnecessary except for a corner part etc. For example, on the occasion of formation of the conventional backup layer, to having needed the degassing activity of 30 seconds per minute per person by three operators, the degassing activity of 35 seconds per minute is sufficient, and the total man day can be reduced to conventional one third by one operator in this example.

[0019] In addition, in this example, although the waterproofing pan 2 formed in order of the gel coat layer 21, the staple fiber reinforcement layer 22, the continuous glass fiber reinforcement layer 23, and the staple fiber backup layer 26 was illustrated, it cannot limit to the waterproofing pan 2 and can apply to other FRP products, for example, an organ bath, a container, etc. Moreover, when you need especially reinforcement, it can also make reinforcement frames, such as waterproof plywood and steel materials, intervene in such an FRP product between the continuous glass fiber reinforcement layer 23 and the staple fiber backup layer 26.

[0020]

[Effect of the Invention] After spraying and stiffening a gel coat resin on the surface of a die as mentioned above according to this invention, a laminating is sprayed and carried out with thermosetting resin, cutting reinforcement fiber by 2-10mm length. Subsequently A laminating is sprayed and carried out with thermosetting resin, cutting reinforcement fiber by 25-50mm length, and a reinforcement frame is intervened further. Since a degassing activity becomes almost unnecessary at the time of formation of the staple fiber backup layer which turns into the outermost layer by spraying and carrying out a laminating with thermosetting resin, cutting direct reinforcement fiber by 3-9mm length, on the occasion of manufacture of an FRP product, productivity can be raised sharply.

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[Translation done.]